

Hemodynamic luminal endoprosthesis

[0001] The invention concerns luminal endoprostheses to be placed in blood vessels, such as
5 stents.

Background of the invention

[0002] Stents are generally placed within the
10 lumen of a narrowed artery in cases when the outcome of angioplasty is uncertain, e.g. in the case of stenoses, recanalized occlusions or vessel dissection.

[0003] When a stent is unfolded, it applies a
constant outward force on the vessel, maintaining the
15 desired dimensions of the lumen and thus reducing the effects of stenosis.

[0004] However, recent studies on the subject
revealed that placement of a luminal endoprosthesis can
cause injuries to the artery wall, which leads to what is
20 called intimal hyperplasia.

[0005] The vascular wall is composed of three
layers, namely the intima (innermost layer composed of a
single layer of endothelial cells), the media (middle
layer which is composed of smooth muscle cells, elastic
25 sheets, elastic fibrils network and bundles of collagenous fibers) and the adventitia (the outer layer).

[0006] It is now well established that intimal
hyperplasia is the main process that induces belated
narrowing of the lumen, even one or two years after
30 intervention. It is related to the loss of endothelium
and to medial injuries, which lead to an accelerated
luminal smooth muscles proliferation migrating from the

Substitute
Specification
Not
Entered
PBP
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